

CLAIMS

1. A recentering device for a rotor shaft (1) for recentering a rotor shaft relative to the axis X of a
5 stator structure (3) in the event of decoupling caused by excessive imbalance, said shaft, in normal operating conditions, lying on the axis X and being radially supported by a bearing support (5) that is disposed in a bore of axis X in said stator structure (3), said bearing support (5) having an outside diameter that is smaller than the diameter of said bore, in order to enable said bearing support to orbit about the axis X in the event of decoupling, said bearing support (5) being connected to the stator structure (3) by radially fusible elements
10 (6), said device comprising means for recentering the bearing support after decoupling,

15 said recentering device being characterized by the fact that the recentering means of the bearing support (5) comprise means (10) for generating a movement in precession P by said bearing support (5) in the direction contrary to the direction of its orbits traveled after decoupling, and a plurality of devices (20) for decreasing the permitted clearance of said bearing support (5) relative to the axis X, said devices for
20 decreasing clearance being arranged regularly around the axes (X, 11) of the two parts constituted by the stator structure (3) and the bearing support (5), and each part including a first ramp (21) that is provided on one of said two parts and a protuberance (22) provided on the
25 other of said two parts, said protuberance (22) being, in normal operating conditions, radially spaced apart apart from said first ramp (21) and capable of coming into contact with said first ramp during the movement in precession P of said bearing support (5).

2. A device according to claim 1, characterized by the fact that all the protuberances (22) are capable of being in contact with the first ramps (21) at the same time.
- 5 3. A device according to claim 1 or claim 2, characterized by the fact that the first ramp (21) has the profile of an involute to a circle, and two adjacent first ramps are connected by a radial shoulder (23).
- 10 4. A device according to claim 3, characterized by the fact that the first ramp (21) has the profile of an Archimedes spiral.
- 15 5. A device according to any one of claims 1 to 4, characterized by the fact that the protuberances (22) are made in the form of blocks.
- 20 6. A device according to any one of claims 1 to 4, characterized by the fact that the protuberance (22) is formed by an end portion of a second ramp (21), said second ramp having a profile similar to the profile of the first ramp.
- 25 7. A device according to any one of claims 1 to 6, characterized by the fact that the first ramp (21) and the protuberance (22) are made of metal.
- 30 8. A device according to claim 7, characterized by the fact that, the protuberance (22) is located, in normal operating conditions, in a position that is radially spaced apart from the associated first ramp (21) by a distance that is greater than the expected radial displacement (JB) of the bearing support (5) during decoupling.
- 35 9. A device according to claim 6, characterized by the fact that the first ramp (21) is made of elastomer and

the second ramp (24) is made of metal and can roll on the first ramp, without sliding, after decoupling, in order to generate the movement in precession P.

5 10. A device according to any one of claims 1 to 8, characterized by the fact that the means for generating the movement in precession (P) comprise an elastomer ring (10) secured to the stator structure (3), said ring (10) surrounding the bearing support (5) and being in
10 permanent contact therewith so that the bearing support (5) can roll without sliding in the bore of said ring (10) after decoupling.

15 11. A device according to claim 10, characterized by the fact that said ring (10) in elastomer is disposed in the bore of the stator structure (3).

12. A device according to claim 10, characterized by the fact that said ring (10) is rigid and is connected to the
20 stator structure by a flexible metal support (30).

13. A device according to any one of claims 1 to 12, characterized by the fact that it comprises three first ramps (21) and three protuberances (22).